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AMERICAN NURSERYMAN

Chief Exponent of the American Nursery Trade

Vol. LVIII No. 12

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EDITORIAL communications on subjects connected with nurseries, arboriculture or other phases of commercial horticulture are welcomed by the editor. Also articles on the subjects and papers prepared for conventions of nursery associations.

PLENTY OF ROOM.

Among the numerous letters which arrive to give encouragement to the new management of The American Nurseryman, after the announcement of the change in ownership in the December 1 issue, was one containing this sentence: "It seems apparent that there is room for a live, worth-while nursery paper because of the extensiveness of the industry and the wealth of information that should be in the nurseryman's hands."

That strikes to the heart of the matter. While the railroads or the steel mills or some other industry may have a greater invested capital or may employ more persons, the nursery industry extends into the interests of a large share of our population. The home owner is surrounded by the products of the nursery, the city dweller who strolls through park or cemetery comes to admire them, the orchardist and berry grower derive their livelihood from them and every farmer uses them to a greater or less degree for either food, profit or ornament.

Those who look ahead see the greatest progress of horticulture in this country still before us. Those sections which are scarcely beyond the pioneer era await a development which will make them more beautiful and fruitful. Only when a country has been settled



The Mirror of the Trade

for generations does horticulture come into its fullest appreciation. Witness the European countrysides.

In the progress of horticulture, nurserymen have a prime part, because their products are chiefly used in the adornment of home grounds, the beautification of cities through parks and boulevards and the improvement of the country through roadside planting and other developments. The rate and degree of progress depend upon the leadership of nurserymen. Through them comes the stimulus of the gardening public. Through them are new varieties and improved strains developed and made possible in such numbers as to afford general enjoyment.

For that reason the wealth of information on horticultural subjects should be in nurserymen's hands. Much is available in books, but for the latest and most up-to-date information the trade periodical performs a service, if it will, that has no rival. The editor's correspondence indicates fully that nurserymen feel the need. To meet it more fully as each successive issue of The American Nurseryman comes from the press is the editorial aim.

FACING THE NEW YEAR.

With the beginning of the new year, the nurseryman faces the necessity of planning for spring business, if he is to make the most of the opportunities the season affords. After the past two or three distinctly unencouraging years, it requires courage or optimism, or both, to embark aggressively on a sales campaign as it needs to be undertaken. Yet, as the old year ends, the improvement in the general business situation amply warrants more forceful measures.

The forces behind the upward trend of business, comments one economic research bureau, are so powerful and clear that it hardly requires the knowledge of an economist to understand the business outlook at this time. Commodity and security prices are definitely headed upward. There is a greater feeling of confidence on the part of the majority of people of this country. These are reflected in the sales reports of mercantile corporations. Money is circulating again, and accounts which were badly frozen a while

ago are being liquidated, at least in part.

The nurseryman must wait until sales commence before he has a measure of the public's desire to buy. But he can see the signs around him. Distribution of merchandise is taking place on a scale well above that of a year ago, as shown by the figures of the large retail institutions. Farm purchasing power is well above a year ago, with wheat and cotton selling at double the prices and corn fifty per cent higher. Automobile sales are proceeding at a rapid rate. Construction contracts are showing increases. Electric power consumption is higher. Revenue freight car loadings are several points over a year ago. Bank clearings are decidedly in advance of last year. Dividend payments by closed banks amounted to nearly \$100,000,000 in one week. Some \$400,000,000 will shortly be made available through Christmas club payments. The government program in civil works projects will put four million men to work before the end of this month. The solvency of business is indicated by the government's index of commercial failures, only half the amount of a year ago.

In 1929 business men would not believe that a depression had come. Now the danger is that they persist in the disbelief that business is coming back. The numerous evidences from other fields indicate that the time is past for worry and now we should energetically proceed to work. The outlook at the approach of the new year justifies a positive course of action.

RURAL OUTLOOK BETTER.

Nurserymen whose sales are chiefly in the rural districts are encouraged by the outlook report recently issued by economists of the United States Department of Agriculture, stating that farmers in 1934 may anticipate a somewhat higher level of prices for their marketable commodities as well as improvement in the exchange value of their output. The domestic demand for most farm products is likely to improve further in 1934. Higher wages, increased cost of equipment and higher fertilizer and seed prices are expected to increase 1934 production costs over 1933, although probably not over 1932.

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AMERICAN NURSERYMAN

[Registered U. S. Patent Office]

The Chief Exponent of the American Nursery Trade

*The Nurseryman's Forte:
To Make America More Beautiful and Fruitful*

Vol. LVIII

DECEMBER 15, 1933

No. 12

Southwestern Co-operative Plan

**Announcement by President C. C. Mayhew Covers
Provisions of Organization and Its Regulations**

ANNOUNCEMENT was made early this month by C. C. Mayhew, president of the Southwestern Nurserymen's Coöperative Association, that firms representing approximately ninety per cent of the nursery stock growing in four southwestern states—Texas, Oklahoma, Arkansas and Louisiana—had signed the marketing agreement of the organization. Others in the territory were asked to send their applications to the treasurer, Otto Lang, Dallas, Tex., with \$2.20, of which \$2 is the membership fee and 20 cents for a copy each of the minimum wholesale price list and the minimum retail price list. E. F. Fuller has been employed as executive secretary. The following information regarding the association is from the statement of Mr. Mayhew.

Coöperative organizations for marketing various agricultural commodities have been successfully operating for several years; however, nurserymen have not felt the need for coöperative organizations until recent years, when general depressed economic conditions have caused a great decline in the market for nurserymen's products, and they have all been found with a large amount of surplus stock and a prevalent overproduction.

Organization Formed.

The nurserymen of the southwest realized the danger in which the nursery industry would be placed should they attempt another season similar to that experienced during the past year or more.

A number of meetings were held without results, until finally, realizing the need of the industry, an organization plan was begun, and charter for a marketing association incorporated under the laws of Texas without capital stock, filed for the Southwestern Nurserymen's Coöperative Association, of Dallas, Tex., in September, 1933. The association covers the territory of Texas, Louisiana, Arkansas and Oklahoma.

The Southwestern Nurserymen's Coöperative Association is a nonprofiting marketing association, with each member having only one vote. It is conducted to render service and to effect savings for the membership, and not to earn profits for distribution.

The membership of the association is open to producers of nursery stock desiring to avail themselves of its facilities

and safeguards to prevent the ownership or control of the enterprise from falling into the hands of a few. Management and business methods are of vital importance in the success of the association. The manager should be a man capable and fitted for his position, and with a clear understanding of the nursery business. Accurate accounting records are to be kept so that complete information regarding the condition of the business may be available at all times. Frequent audits by the auditing committee of the accounts of the association are also of vital importance.

Membership.

Membership loyalty is the determining factor of the success of the organization. The lack of loyalty of members will be the only cause of its downfall.

There are, in several states, coöperative marketing laws covering provisions of the Capper-Volstead act, which permits nonprofiting coöperative agricultural organizations to operate for the mutual benefit of their members in interstate commerce and do business with members and nonmembers of their association, to set minimum prices, and to market their products collectively or individually, and to make marketing agreements between their members.

This Southwestern Nurserymen's Coöperative Association does not in any way conflict with the provisions of the Capper-Volstead act and has been approved by the attorneys-general in a number of states.

Articles of Incorporation.

The articles of incorporation of the Southwestern Nurserymen's Coöperative Association state:

"The purpose for which the Southwestern Nurserymen's Coöperative Association is organized is to engage in any activity in connection with the marketing or selling of the agricultural, including horticultural and viticultural, products and their by-products of its members; and with the harvesting, processing, packing, storing, handling, shipping or utilization thereof, and in connection with the manufacturing, selling and supplying to its members of machinery, equipment or supplies, and in the financing of the above enumerated activities or in any one or

more of the activities specified, including collective bargaining.

"It shall have the power to do each and everything necessary, suitable or proper for the accomplishments of any one of the purposes or the attainment of any one or more of the objects herein enumerated; or conducive to or expedient for the interest or benefit of the association, and to contract accordingly, and in addition to exercise and possess all powers, rights and privileges necessary or incidental to the purposes for which the association is organized or to the activities in which it is engaged; and in addition, any other rights, powers and privileges granted by the laws of this state to ordinary corporations, except such as are inconsistent with the express provisions of this act; and to do any such thing anywhere.

"The Southwestern Nurserymen's Coöperative Association may act as a stabilization corporation when recognized as such under the provisions of the agricultural marketing act of the Congress of the United States, approved June 15, 1929, and when so acting to have the power to deal in the products of nonmembers; provided, however, the value of the products so purchased from nonmembers shall not in any one year exceed the value of the products purchased and handled by it for members."

Directors.

The association will be managed by a board of seven directors. The names and residences of those selected to serve for the first year or until their successors shall have been elected and qualified are: Eugene Howard, Austin, Tex.; Lee Mosty, Center Point, Tex.; C. C. Mayhew, Sherman, Tex.; C. A. Schick, Terrell, Tex.; Otto Lang, Dallas, Tex.; E. L. Baker, Fort Worth, Tex.; J. V. Smith, Sherman, Tex.

The term "nursery products," according to the association's constitution, is construed to mean fruit and nut trees, grapevines, hedge plants, shade and ornamental trees, evergreens, ornamental shrubs and vines, and roses.

Any person or persons, firm or corporation who has land investment for the purpose of producing nursery products or whose principal business is the production and marketing of nursery products shall be eligible for membership.

The following rules and regulations:

governing trade practices within area described in marketing agreement have been set up by the board of directors and shall be observed by all members of the association:

I.—Classification of purchasers. For the purpose of classification the following definitions of the various classes of purchasers are set forth: Nurserymen, Growers and producers of nursery stock who have a land investment for the production of nursery products or the majority of whose time throughout the year is devoted to the production and sale of nursery products.

Dealers, Jobbers, landscape contractors, florists, seedsmen and others who buy nursery products for resale, but who have no land investment for the production of nursery products.

Merchant buyers. Department stores, chain stores and other retail mercantile stores.

Institutional buyers. Cemeteries, parks, golf clubs, public institutions and subdivisions.

Consumers. Those who buy nursery products, but not for purposes of resale. This includes clients of landscape architects.

II.—Price differentials. The terms "wholesale prices" and "retail prices" as hereinafter used shall mean the minimum wholesale and minimum retail prices as set up by the board of directors and as may be amended from time to time.

(a) Nurserymen shall not be quoted less than wholesale prices, except that members of the association may be allowed a ten per cent discount from wholesale prices.

(b) Dealers shall not be quoted less than wholesale prices.

(c) Merchant buyers shall not be quoted less than twenty-five per cent above wholesale prices.

(d) For the purpose of naming prices to institutional buyers the territory embraced in agreement shall be divided by a line drawn east and west through Marlin, Tex., and territory south of this line shall be called southern territory and territory north of this line shall be called northern territory. Institutional buyers in southern territory shall not be quoted less than fifty per cent above wholesale prices, and institutional buyers in northern territory shall not be quoted less than twenty-five per cent above wholesale prices.

(e) Consumers shall not be quoted less than retail price.

III.—Sales to nonmembers. Members of the association shall not sell to nurserymen and dealers who are nonmembers within area described in marketing agreement unless such nurserymen and dealers shall agree in writing to abide by the standards of fair practices as set forth by the association and to sell to the consumer at not less than retail prices as set up by the board of directors.

In the event that any nurseryman or dealer who is a nonmember shall fail to comply with standards of fair practices as set up by the association and who sells to consumer at less than retail prices, the board of directors shall have the power, after thorough and sufficient investigation, to notify each member of the association to refuse to sell such nurseryman or dealer until further notice.

IV.—Unfair practices. The following practices are considered unfair and are prohibited under marketing agreement:

(a) The payment or allowances to any customer, either directly or indirectly by subterfuge, of secret rebates, credits or unearned discounts, whether in the form of money or otherwise.

(b) False invoicing, secret free goods, piracy of designs (the use of plans, specifications or designs without the consent of owner), or secret freight absorption (the absorption of freight charges not specified in terms of sale). Freight absorption is permissible where such allowances do not bring the net prices below the minimum prices set up by the board of directors.

(c) Willfully inducing or attempting to induce the breach of any existing contracts.

(d) The sending of prices other than retail through the mail in such a manner as to expose prices.

(e) No free guarantee of plants to live shall be made, and where such insurance is demanded by the customer, an additional charge of not less than ten per cent of the selling price shall be made.

(f) Free planting of nursery stock is prohibited. Where such service is rendered, an additional charge of not less than ten per cent of the selling price shall be made.

(g) No sale of nursery stock shall be made on consignment, either directly or indirectly.

(h) Nursery products produced by any tax-supported or tax-exempt institution or organization,

CODE TO REGIONAL BODIES.

The marketing agreement and master code of fair competition for nurserymen is now being mailed to the executive committees of the regional associations.

A provision for including an open price plan is also being presented for their consideration.

As soon as their reactions to these proposed agreements are received, the various trade papers will carry full reports of the findings of the national committee.

Nurserymen's National
Planning Committee,
Clarence O. Siebenthaler,
Chairman.

such as state or municipal departments or parks, or by consumers' nurseries, shall not be marketed under this agreement.

V.—Grading standards. While grading standards as usually employed in territory described in marketing agreement may not always coincide with horticultural standards as set up by the American Association of Nurserymen, in case of misunderstandings or controversies between members of the association the horticultural standards of grading as adopted by the American Association of Nurserymen shall govern in the settlement of such misunderstandings or controversies.

VI.—Terms of sale. Terms of sale to nurserymen, dealers and institutional buyers shall not exceed sixty days net, with discount of five per cent for cash payment on or before delivery, two per cent within ten days, one per cent thirty days. Interest at the rate of six per cent per annum shall be charged on all accounts from date of maturity.

VII.—Classification of stock. For guidance in applying quantity prices, the following classifications of nursery products are set up, and classes as set forth shall not be mixed in order to have applied the quantity rates:

Class 1—Balled and burlapped plants.
Class 2—Shade and nut trees.
Class 3—Hedge plants and berry vines.
Class 4—All bare-root stock except that included in classes 2 and 3.

VIII.—Quantity rates. Prices on the various classes of stock are listed per each, per ten, per hundred, or per thousand, and shall be made to apply as follows:

1 to 9 at the each rate.
10 to 49 at the ten rate.
50 to 299 at the hundred rate.
300 to 1499 at the thousand rate.
1500 to 3499 at five per cent off the thousand rate.
3500 or over at ten per cent off the thousand rate.

IX.—Prices. The minimum wholesale prices set up by the board of directors shall be for stock loaded bulk f.o.b. nursery without baling, crating or boxing. Where stock is packed in bales, crates or boxes, such packing shall be charged for in addition to prices named for stock.

In the event any stock is wrapped or packed in special way for individual or department store handling, such wrapping and packing shall be charged for in addition to prices named.

Marketing Agreement.

The coöperative marketing agreement, signed by members for a period of three years, provides that members of the association shall have the privilege of acting as agents for the association in making sales and deliveries direct to the individual customers, actual reports of such sales and deliveries to be filed with the association at such time and in such manner as may be required by the board of directors, and such sales and deliveries

shall be considered as having been made direct through the association.

For all sales and deliveries made direct to customers, retail or wholesale, by members acting as agents of the association, collections shall be made by the members, payments to be received by the members direct from such customers, but on all such sales and deliveries the members shall pay in to the association at time of filing such reports a sum of money to be assessed by the board of directors, which sum shall not exceed one-half of one per cent of all such sales and deliveries covered by such reports.

For breach of the agreement, or the violation of any of the rules and regulations, liquidated damages shall be assessed in the sum not to exceed \$200 and not less than \$25, such sum to be determined by the board of directors.

Minimum Price List.

While it has been the intention of the board of directors and officers of the association to cover all points, amendments can be made from time to time. Several additions have been made to the original set-up. Perhaps the most important of these is bulletin No. 1, minimum retail price list, and the provision that nurserymen or dealers handling stock for resale should not sell for less than these minimum prices.

It should be understood that while they are not permitted to sell below these minimum prices, there is nothing to prohibit them from selling for more, or charging for extra specimen stock, and if stock is to be planted, that a charge of not less than ten per cent of the selling price of stock should be made for planting. Free guarantees are prohibited under the rules and regulations, and no planting should be guaranteed to live, unless a charge of at least ten per cent above the selling price is made to cover the guarantee. A further provision prohibits the sale of nursery stock on consignment. These are some of the rules of fair trade practices and should be closely observed.

On the back cover of bulletin No. 1, a dealers' agreement appears, to be signed by every member or nonmember, dealer or jobber, buying nursery stock for resale. This contract covers the foregoing terms, also.

BUSINESS EMBARRASMENTS.

Crestwood, N. Y.—A meeting of the creditors of Hothorn Nurseries, Inc., Crestwood, N. Y., bankrupt, was held at the county courthouse, White Plains, N. Y., December 14, at 2 p. m., before Frederick W. Stelle, referee in bankruptcy, whose office is at 22 Croton avenue, Ossining, N. Y., to hear the final account of Samuel I. Osofsky, receiver and trustee.

THE AMERICAN ASSOCIATION OF NURSERYMEN

Is accomplishing much for the Nursery Trade.
With a record of fifty-eight years of service.
Practical departments and active committees.
National conventions of inestimable value.

Unite with other representative nurserymen throughout the country to protect your interest and advance your business. Only nurserymen of high ideals are eligible to membership.

President—Lester C. Lovett, Little Silver, N. J.

Vice-President—Miles Bryant, Princeton, Ill.

Write CHARLES SIZEMORE, Secretary, Louisiana, Mo., for full particulars
1934 CONVENTION, JULY 17-19, NEW YORK CITY

Planting for Highway Improvement

By L. C. Chadwick

Department of Horticulture, Ohio State University

If artificial watering is not practical, the seeding should be done in spring or fall, as rainfall is usually more abundant at these seasons. Except in the extreme northern part of Ohio, fall seeding seems to be best in that state, because the grass seed will germinate and grow readily while most of the weeds will not start until spring. The grass gets a start in the fall and will grow quickly in the spring, long before spring seeding can be done. The fall seeding with its early start will be able to stand the dry summer weather better than spring seedage. As general recommendations for central Ohio, the latest fall sowing date is October 1 and latest spring sowing date June 1. A variation of two weeks in these dates may be practiced for the southern and northern parts of the state. At least six weeks of growing weather are required thoroughly to establish grass seedlings on ordinary soils.

Just previous to sowing the seed, rake the soil to an even grade. Be sure the topsoil is of sufficient depth to assure proper germination and growth of the seed and seedlings. Two inches will be sufficient if the soil has been well worked and aerated, but three inches are better for average conditions. If the subsoil is a heavy clay and nothing has been added to it, a 4-inch layer of topsoil is necessary. Divide the seed into two equal parts. One-half should be sown in parallel strips, either by broadcast or with a grass seeder, to cover the whole area. When this is completed, the other half of the seed should be sown at right angles to the first in a similar way. By going over the ground twice an even seeding may be obtained. If a good mechanical seeder is available, this double sowing will not be necessary.

After sowing, the seed should be covered lightly from one-eighth to one-fourth inch deep. This is usually done by raking gently with an iron rake. A fertilizer bag tacked to a smoothing board makes a better tool. After covering the seed, the bed should be rolled in two directions.

If dry weather follows the seeding, water must be applied. It is preferable that the water be applied in the evening, as less is lost by evaporation and with heavy clay soil the surface will dry slowly before morning and prevent baking.

Grass Seed Mixtures.

Mixtures are used for two reasons:

(1) For quick growth. It is advisable to have a grass that will grow quickly, to prevent washing of the soil, to control weed growth and to act as a nurse crop for the more permanent grasses. Redtop is of this nature. It tends to die out after the first year or two when used in mixtures with Kentucky blue grass. Perennial rye also lasts but one or two seasons under such conditions.

(2) Because of variation in the area to be seeded. Kentucky blue grass does not do well in shade or poor soil. Red

The first installment of this article, in the December 1 issue, presented the preliminary steps toward highway improvement. The second here covers preparing the turf and planting the trees, while the next issue will carry the final installment caring for trees and shrubs.

The table of plants suitable for highway beautification, with the opening installment, is an especially valuable feature of this series.

fescue will endure shade and light poor soil. Rough-stalked meadow grass does well in shade if the soil is rich and moist. Rhode Island and the creeping bents do fairly well in shade and the Rhode Island is fairly tolerant of adverse conditions. Redtop tolerates poor wet soil and is also fairly drought-resistant. Because of these variations, it is advisable to use mixtures of various grasses.

For Various Situations.

General recommendations of the best mixtures can be given for various situations:

For average conditions, with loamy or clay loam soils—Four parts Kentucky blue grass, one part redtop and one part perennial rye. Seed at the rate of three to four pounds per thousand square feet.

For shady conditions, with poor dry soil—Two parts Kentucky blue grass, one part redtop, one part perennial rye and four parts red fescue. Seed at the rate of four to five pounds per thousand square feet.

For extremely sandy soils—Two parts south German bent, one part redtop and two parts red fescue. Seed at the rate of three to four pounds per thousand square feet.

For highly acid soils—Two parts south German bent, one part redtop and three parts red fescue. Seed at the rate of three to four pounds per thousand square feet.

For extremely alkaline soils—Four parts Kentucky blue grass, one part redtop and one part perennial rye. Seed at the rate of three to four pounds per thousand square feet.

It should be recalled that red fescue has a low rate of germination and is practically worthless if more than one year old. It is also coarse. If occasion warrants a red fescue sod, use six parts fescue and one part redtop at the rate of six to seven pounds per thousand square feet.

Unless the soil is extremely acid, lime will not benefit to any great extent the growth of grass, but it is liable to create soil conditions that are favorable for the growth of weeds. Under extremely acid soil conditions, an application of twenty-five pounds hydrated lime once in every five or six years will be of benefit.

On established turf and early in the

spring before the grass begins to grow, apply an 8-5-3 or 10-6-4 fertilizer at the rate of twenty to twenty-five pounds per thousand square feet. Another application at the rate of ten pounds per thousand square feet may be made in mid-June if necessary to maintain good growth.

Sodding.

Aside from steep slopes, where washing would prevent the establishment of a turf from seed, it is seldom necessary to use sod. Sodding is more expensive than seeding and does not give so good results as the latter. If sodding is necessary, the soil should be prepared much the same as for seeding. A good growth of grass from sod cannot be expected if the sod is laid on excavated subsoil or hard subsoil of any type. Sods of uniform thickness, from three-quarters to one inch thick, should be cut and laid so that the joints are even, without openings between them. After laying, it should be thoroughly watered and tamped or rolled with a medium-weight roller. If laid on a good seed bed, sod should become established in two weeks. The grass should be cut at regular intervals during the summer. All traffic circles, clover leaves and triangles should be mowed every seven to ten days during the rapid-growing season. General roadside grass strips should be mowed four to five times during the season.

In many cases where it is difficult to establish grass on steep slopes, it is possible to use some type of ground cover material which will grow but little larger than grass. Such material will form as uniform covering as grass and will prevent erosion better than grass. Where not objectionable, larger shrubs to the height of three to five feet may be planted, but where grass is usually desired these plants become too high.

Plant Materials.

Accompanying the first installment was a list of plant materials that will prove entirely satisfactory for highways. They have been selected because they are able to withstand adverse conditions, because their growth is vigorous, because they require little maintenance and because many give pleasing flower, fruit and foliage effects. Many of them are native plants and others are such that they will blend well in informal plantings. They are presented in size groups, enabling easy selection for various locations. It should be understood that these are only approximate, as the height will vary according to cultural conditions.

It is always best to buy trees and shrubs from some near-by nursery, so that they will not suffer from long shipment. Most plants may be readily planted in the fall with even better success than in the spring. It is, however, safer to plant a few trees, such as the beech (fagus), birch (betula), dogwood (cornus) and linden (tilia) in the spring.

When the plants are received from the nursery, plant them just as soon

as possible, so that they may not be exposed to the sun or drying winds. If they are received at an unfavorable time for planting, heel them in at a convenient place, being sure that the roots are well covered. If the stems are partially covered, this is an added precaution against drying out.

In planting, dig the holes large enough, generally fifteen to eighteen inches deep and often larger in diameter, especially for trees and balled and burlapped specimens, so that the roots are not crowded or twisted. It is best thoroughly to prepare the soil before planting. The soil bed may be prepared by mixing with the topsoil a liberal quantity of peat moss or well rotted manure and, if the soil is low in fertility, a good commercial fertilizer such as an 8-5-3 or 10-6-4 at the rate of two to three pounds per hundred square feet. Large shrubs should have one-half pound per plant and trees one-half pound per inch in diameter of the trunk. If the soil is not adequately drained, some means of artificial drainage must be provided. This may be carefully laid tile lines for large trees or crushed stone and cinders in the bottom of the holes for smaller plants.

Only good soil, either the topsoil or that which has been previously prepared, should be used about the roots of the plants. When finally set, the plant should be at approximately the same depth as it was previously, growing in the nursery. Pack the soil thoroughly about the roots. After planting the stock, water it thoroughly and as frequently thereafter as is necessary to keep the soil moist. Mulch the plants after planting them to a depth of three to four inches with peat moss or straw.

Transplanting Trees.

For the most part, trees require but little more care in transplanting than shrubs. Trees or any other plants should not be planted in sod. Be sure the hole is considerably larger than necessary to accommodate the spread of the roots. Ample drainage should be provided and only good topsoil used about the roots, planting the trees firmly. More will be mentioned regarding pruning later, but may it suffice here to say that the tops should be cut back severely, enough to compensate for the loss of roots in digging. With trees three or more inches in diameter, it is best to wrap the trunk with burlap as a preventative of sun scald and of drying of the bark and as a partial control for borers. The burlap is used in narrow strips and should be put tightly around the trunk from the ground to at least the lower branches. All trees should be staked. Attach the tree to the stake by running a wire through a piece of garden hose, which will prevent injury to the bark of the tree. On larger trees where guy wires are fastened to small stakes a similar means of attaching the wire to the tree can be used.

Planting Evergreens.

It is customary to divide evergreens into two groups, the narrow-leaved evergreens, such as the pines, spruces, junipers, etc., and the broad-leaved evergreens, for example, the rhododendrons and mountain laurel. The proper time of transplanting varies with these two groups.

The narrow-leaved evergreens may be properly planted at two seasons of the

year. Besides the old practice of spring planting, it has been found that, for the narrow-leaved evergreens, fall planting is satisfactory.

The broad-leaved evergreens are best planted in the spring and a little later than the narrow-leaved. The first weeks in May will prove the best time for planting the broad-leaved.

The two most important factors governing planting of evergreens are moisture and temperature. There must be plenty of moisture in the soil at planting time. This factor does not need to be stressed for spring planting. The second important factor, temperature, should be carefully considered. Evergreens should not be transplanted to a cold soil, but to one sufficiently warm to permit root growth to begin immediately and to continue during the rest of the spring and summer. The soil should be warm enough during April to permit planting in most parts of the north. Good soil, depth of planting, firming of the soil about the roots and mulching should be practiced even more carefully than with deciduous plants.

It should be remembered that many of the broad-leaved evergreens must have an acid soil. It should not only be acid, but should contain a large amount of organic matter as well and be perfectly drained. These conditions can be secured and maintained by providing adequate drainage at the start and by applying aluminum sulphate (one-half to three-quarters pound per square yard) once or twice a year and acid peat moss as a mulch.

It should be remembered that during the whole planting operation the roots should never be exposed to the air, because wind or sun will dry out the roots quickly.

The broad-leaved evergreens should be mulched with acid peat moss or half-rotted oak leaves, and the same materials will prove satisfactory for the narrow-leaved types.

Planting Distances.

Planting distances should be so arranged that the plants will be at their best in three or four years from the time of planting. Slow-growing plants may be longer in obtaining this condition. This will provide a good landscape effect with a minimum amount of maintenance.

The following planting distances may be given:

Vines (on walls, fences)—five to ten feet apart.

Ground cover—one to two feet apart.

Low shrubs (1 to 3-foot)—two feet apart.

Small shrubs (4 to 5-foot)—four feet apart.

Medium shrubs (6 to 9-foot)—six feet apart.

Large shrubs or small trees (10 to 25-foot)—eight to twelve feet apart.

Standard trees (50 to 100-foot).

Street trees

(a) Narrow streets (fifty to seventy-five feet between buildings) use narrow trees forty feet apart and staggered.

(b) Medium streets (seventy-five to one hundred feet between buildings) use medium trees forty feet apart.

(c) Wide streets (over 100 feet between buildings) use large trees fifty to sixty feet apart and, if possible, set them uniformly six feet inside the property line.

In dense groups or as windbreaks—twelve feet apart. Plants should alternate in two rows, rows six feet apart, plants twelve feet in the row.

In normal woodland or grove planting—twenty-five feet apart.

Hedge planting

Low hedge (three to four feet high)—allow two to three feet in width and space plants sixteen inches in row.

Tall hedge (six to eight feet high)—allow four to six feet in width and space three feet apart.

It should be realized that these distances can be taken only as a general

rule. The type of plant and the desired effect will alter these distances. It is not a good practice to crowd the plants together. Give them an opportunity to grow in breadth as well as height. Regulate the planting distances on the mature size of the plant and not according to the size you buy.

[Concluded in next issue.]

SELLS PARKWAY PLANTING.

The business outlook will be brighter if you make an effort to develop new business, declares N. N. Oslund, operating Oslund's Nursery at Cambridge, Minn. His personal activities along this line, which took the form of developing parkways adjoining the railroad station at Harris, Minn., fourteen miles from Cambridge, are described in the following paragraphs:

Harris is about fifty miles north of St. Paul and about 100 miles south of Duluth. The population is about 1,000. The Women's Community Club became convinced that the area about the town's railroad station needed attention. With Mr. Oslund's assistance, the club members are now assured that they will have the outstanding beauty spot along the Northern Pacific right of way, between Duluth and St. Paul, within a year or two.

One of the parkways is 40x540 feet, parallel to the railroad, which was planted last spring with nearly 100 evergreens, some shrubs and trees as a gift to the town from Oslund's Nursery. The second parkway, planting of which is being sponsored by the Harris Women's Community Club, is 40x360 feet. This, which is now ready for planting, will have shrubbery along the right of way next spring and about 500 plants as a border within. There will be a central flower bed, with Mugho pines and Savin junipers bordering the highway. Mr. Oslund, who is supervising all the work, prepared planting plans twelve feet long for the parkway.

GET PARK JOB AT FORT WORTH.

Hare & Hare, landscape architects of Kansas City, Mo., have been retained by the park and school boards of Fort Worth, Tex., to plan a coordinated development of beautification for the property under the jurisdiction of these bodies in the Texas city. S. Herbert Hare will direct the development and maintenance of Fort Worth school grounds. Mr. Hare will be assisted by Donald W. Bush.

Hare & Hare have been advisers to the Fort Worth park board for the past eight years, in which time they have prepared plans for a comprehensive system of parks and playgrounds.

A DINNER meeting of the retail nurserymen of Poughkeepsie, N. Y., and the Hudson valley was held at the Nelson House, Poughkeepsie, December 5. In charge of arrangements were Alfred E. Bahret, Chester Cobb, Peter Van Melle and William E. Bock.

TO PAY for personal property taxes of Benthien Nurseries, Inc., Tacoma, Wash., in receivership, Superior Judge F. G. Remann recently signed an order permitting officials of Pierce county, Wash., to accept shrubs from the firm. The shrubs will be used to beautify the grounds about the county buildings.

News of the State Associations

NURSEYRYMEN'S CONVENTIONS.

Meetings, conventions and short courses for nurserymen scheduled during the next six weeks are as follows:

December 18 and 19, Minnesota State Nurserymen's Association and Northern Retail Nurserymen's Association, combined convention, Hotel St. Paul, St. Paul, Minn. Secretary, W. T. Cowperthwaite, 20 West Fifth street, St. Paul.

December 28 to 30, American Society for the Advancement of Horticultural Science, annual meeting, Boston, Mass. Secretary, H. B. Tukey, Geneva, N. Y.

January 4, Nebraska Nurserymen's Association, annual convention, Cornhusker hotel, Lincoln. Secretary, Ernst Herminghaus, State Capitol, Lincoln, Neb.

January 10 and 11, Illinois State Nurserymen's Association, annual convention, Hotel Sherman, Chicago. Secretary, Miles Bryant, Princeton, Ill.

January 10, New York State Nurserymen's Association, annual convention, Seneca hotel, Rochester, N. Y. Secretary, C. J. Maloy, 209 Linden street, Rochester, N. Y.

January 10, Oklahoma State Nurserymen's Association, annual convention, Oklahoma City, Okla. Secretary, Mrs. W. E. Rey, Oklahoma City, Okla.

January 11 and 12, Ohio Nurserymen's Association, midwinter convention, Deshler-Wallick hotel, Columbus, O.

January 23 to 25, fourth annual nurserymen's conference at Cornell University, Ithaca, N. Y.

January 23 to 25, Western Association of Nurserymen, annual convention, Hotel President, Kansas City, Mo. Secretary, George W. Holsinger, Rosedale station, Kansas City, Kan.

January 24 and 25, nurserymen's short course at Ohio State University, Columbus, O.

February 7, Rhode Island Nurserymen's Association, annual convention, Providence, R. I. Secretary, V. J. Vanicek, Newport, R. I.

WESTERNERS' PROGRAM.

For their forty-fourth annual meeting, the members of the Western Association of Nurserymen will convene at the Hotel Huntington, Kansas City, Mo., January 23 to 25. Mornings are left free. The first afternoon is devoted solely to retailers' problems, this session beginning at 2 o'clock.

Following appears the schedule for the last two days:

JANUARY 24, 12 NOON.

Luncheon in the Astor room, Hotel President. Call to order. Applications for membership. Appointment of committees. Address, by President A. E. Weston, Neosho, Mo.

Report of secretary-treasurer, by George W. Holsinger, Kansas City, Kan. Report on business conditions, Merle Smith leading the discussion.

"Highway Beautification," by F. W. Sayers, assistant maintenance engineer of the Missouri state highway commission.

JANUARY 25, 12 NOON.

Luncheon. Report of committee on nominations. Election of officers.

"The Nursery Code," discussion led by Henry B. Chase, Chase, Ala., assisted by Paul Stark, Louisiana, Mo.

"The Southwestern Nurserymen's Cooperative Association—Its Purposes and How It Is Organized," by C. C. Mayhew, Sherman, Tex., president of the group.

MINNESOTA PROGRAM.

The annual convention of the Minnesota State Nurserymen's Association will be held at the St. Paul hotel, in St. Paul, December 18 and 19. At that time the Northern Retail Nurserymen's Association will also convene. The open sessions of both organizations will be combined, and in consequence a larger attendance and a more interesting program can be expected.

The formal program has been arranged so that there will be speakers on some of the subjects that are of great interest to members at this time and, in addition, ample time has been allowed for informal discussions.

R. D. Underwood, of the Jewell Nursery, Lake City, will speak Monday morning on the subject, "The National Code of Fair Practice for Nurserymen." Monday afternoon, E. C. Hilborn, Valley City, N. D., who has given a great deal of study and attention to the establishment of government-owned nurseries, will give the convention the benefit of his views on that matter.

Commissioner N. W. Elsberg, of the state highway department, will outline the plans of his department on roadside beautification, and if possible there will be other federal and highway representatives who can give first-hand information as to how the nurserymen can assist in carrying out beautification work along the state highways.

From the Minnesota state university farm, Prof. A. G. Ruggles, Minnesota entomologist, and Prof. W. H. Alderman, chief of staff, will be present.

Tuesday afternoon, Harry G. Loftus, chairman of the transportation committee, will give a report of his findings during the year as to freight and bus rates. At noon on the second day a convention luncheon will be held, taking the place of the more elaborate banquet of former years.

The officers of the Minnesota State Nurserymen's Association are as follows: President, D. M. Mitchell; vice-president, Bj. Loss; treasurer, H. S. Reid; secretary, W. T. Cowperthwaite.

The officers of the Northern Retail Nurserymen's Association are: President, Bj. Loss; vice-president, J. V. Bailey; secretary, H. G. Loftus.

OHIO SHORT COURSE.

Plans are nearly completed for the annual nurserymen's and landscape gardeners' short course to be held January 24 and 25 at Ohio State University, Columbus. Unfortunately, the dates do not coincide with the winter meeting of the Ohio State Nurserymen's Association, since the latter meeting has been advanced. Nevertheless, a program is being prepared which should interest every nurseryman in the state, announces the department of horticulture. Emphasis this year will be placed on the fundamental practices of production and the characteristics and uses of new plant materials, both ornamentals and fruits.

The condition of Thomas E. Cashman, Owatonna, Minn., is reported to be critical. Illness has kept him inactive for the last year.

FORM ARBORISTS' ASSOCIATION.

The National Association of Arborists was formed at a meeting December 5 and 6 at the Hotel Lincoln, New York city, attended by about fifty individuals as instructed delegates from nineteen local or district groups of commercial tree workers or as unofficial representatives, altogether representing some 300 firms in the east and middle west. The meeting was called by Dr. R. P. White, New Brunswick, N. J., who is secretary of the National Shade Tree Conference and whose volunteer committee had done the preliminary work.

Officers of the new association are: President, H. L. Frost, Arlington, Mass.; vice-president, Charles F. Irish, Cleveland, O.; secretary-treasurer, A. F. W. Vick, Bala-Cynwyd, Pa.; executive committee, R. D. Lowden, Boston, Mass., and A. S. Nelson, Glenview, Ill., for two years, and Philip Hansling, Hartford, Conn., and C. W. Morey, Woonsocket, R. I., for one year.

A constitution was adopted and the preparation of a code was undertaken. For the latter, the code filed by the Society of Arborists some time ago and now under advisement by the agricultural adjustment administration was used as a groundwork. Report on the code will be issued later.

The constitution adopted by the association provides for an executive committee, a council made up of one delegate from each group, and an advisory board. Annual dues of at least \$1 per member were set, the exact amount needed each year to cover general expenses to be determined by the executive committee and collected by the treasurers of the regional groups and remitted to the national treasurer.

The Philadelphia branch of the National Association of Arborists adopted by-laws, completed a proposed code and elected officers at a meeting November 27. The president is Gilbert Jones, Eagleville, Pa., and the secretary is J. G. Heinecke, of Harrison, Mertz & Emlen, 5328 Green St., Germantown, Philadelphia.

LONG ISLAND MEETING.

At the November meeting of the Long Island Nurserymen's Association, held at the Hotel Huntington, Huntington, N. Y., the members voted to bring up at the coming annual meeting the proposal to hold meetings quarterly instead of monthly. Changing the by-laws to permit increasing the annual dues from \$5 to \$10 also will be decided at the annual meeting. A suggestion to hold a meeting in March to permit the members to buy and sell among themselves was endorsed, and a special committee was appointed to work out plans. The annual meeting will be held at 10 a. m. January 8, at the Huntington hotel.

Joseph Bulk, of Bulk's Nursery, Babylon, occupied the chair as president. P. M. Koster, of the Bagatelle Nursery, was named to head a committee to interview the Long Island state park commission to urge the use of nursery-grown material instead of collected stock.

Curb Plant Pests' Spread

Federal Bureaus Report on Year's Work

Revocation of two domestic plant quarantines, progress in suppressing the pink bollworm in the cotton belt and a successful attack on the gypsy moth in a newly discovered outbreak in Pennsylvania were among the important developments in plant quarantine work for the year ended June 30, 1933, according to the annual report of the bureau of plant quarantine of the United States Department of Agriculture, made public December 1.

The canceled regulations covered the European corn borer and the phony peach disease. Lack of funds for adequate enforcement necessitated the revocation of the corn borer quarantine. The discovery that the phony peach disease occurs extensively in the large peach-growing areas in several states led to the decision to proceed against it through the nursery inspection organizations in the states concerned. By cooperating with the states in the inspection and certification of susceptible materials, the federal bureau continued its activities against the spread of both the corn borer and the phony peach disease.

The gypsy moth outbreak in Pennsylvania, discovered in the late summer of 1932, proved—with the exception of the New Jersey infestation first observed in 1920—to be the most extensive ever found in this country west of the New England states. Federal and state officials worked together in an effort to suppress this new outbreak.

20,000 Interceptions Made.

Port inspections resulted in more than 20,000 interceptions of insect pests and plant diseases in shipments from foreign countries. These included many serious pests of fruit, cotton, rice, beans, potatoes, nursery stock and forest trees. With the help of customs officials, plant quarantine inspectors examined the cargoes and baggage on nearly 27,000 ships. They also inspected 3,427 airplanes, 626 of the interceptions being air shipments. The usual patrol of the Mexican border to keep out Mexican insect pests and plant diseases, many of which are not yet established in the United States, called for the inspection of 13,302 freight cars, 499 of which had to be cleaned and 3,090 fumigated as a condition of entry.

Plant quarantine inspectors examine large numbers of domestic and foreign-grown narcissus bulbs each year. All foreign-grown bulbs are treated as a condition of entry, and all domestic bulbs showing signs of insect infestation or disease are treated before being shipped interstate. This year's search for better methods of bulb treatment showed that vapor heat treatments are effective in eliminating the greater bulb fly and in controlling eelworms in narcissus bulbs.

A method of destroying Japanese beetle larvae in hardy perennial plants in pots eliminated the beetle, without injuring the plants, in fifty-five out of the sixty-one varieties of plants used in the tests.

Through domestic plant quarantines and the introduction of new and improved methods for treating insect-infested and diseased plants and plant materials, progress was made this year in suppressing, preventing or retarding the spread of the Mexican fruit fly, Japanese beetle, pink bollworm of cotton, *Thurberia weevil*, *Parlatoria* scale on date palms, gypsy, brown-tail and satin moths, narcissus pests, white pine blister rust and Woodgate rust.

CLIMATE CONTROLS INSECTS.

The importance of climate in controlling insect pests is emphasized in the annual report of the bureau of entomology of the United States Department of Agriculture for the year ended September 15, 1933. An unusually cold winter in some sections and an unusually hot, or cold, moist or dry, spring and early summer in others, the report says, prevented serious outbreaks of a number of destructive insects.

For example, prolonged periods of intense cold wiped out overwintering broods of bark beetles in certain areas in the far west. Low winter temperatures also caused high mortality among hibernating pea weevils, and the 1933 pea crop in the important Palouse area of Washington and Idaho was comparatively free from damage. The summer drought and heat in the wheat-growing areas east of the Rocky mountains and over much of the cotton belt effectively checked the activities of two important pests—the Hessian fly in

wheat and the boll weevil in cotton. Drought in the middle west, however, had just the opposite effect on another insect enemy of small grains and forage crops. The chinch bug, which thrives in dry weather, made notable increases, spreading even to Pennsylvania, New York and Vermont.

These experiences, the bureau of entomology points out, indicate that under unusually favorable conditions climatic factors can be more effective than calculated control by man. The weather, however, cannot always be counted on to take man's side in the eternal fight against insect pests. Sometimes it favors the insects. The bureau of entomology, therefore, continued its efforts to develop more effective control measures such as establishing strong colonies of parasites that effectively prey on certain insect pests, seeking new sprays and dusts, devising suitable traps and working out modifications of existing cultural practices that can be counted on to have an adverse effect on insect infestations.

CONTROL PESTS BY PLANNING.

Foresight in setting out trees and shrubs saves much trouble and expense in disease and insect pest control after the plantings reach maturity. United States Department of Agriculture entomologists call attention to several troubles that may be easily avoided by planning before planting. These sug-

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gestions are valuable to landscape planners or designers of home grounds.

The first thing to avoid, they say, is an abundance of a single plant species. Insects or disease organisms provided with plenty of food often get out of hand. Thus, the recent vogue of boxwood has caused the boxwood leaf miner to flourish at the expense of the tree in many lawns, gardens and parks.

Another planting error to avoid is having all the trees and shrubs of one age. As they mature, trees become more susceptible to insect and disease attacks. Borers emerging from an old tree meet little resistance from an adjoining tree of the same age. A regular schedule for planting a few trees or shrubs each year will insure the proper variation in age.

Certain combinations are also dangerous, either because the plants have the same enemies or because they are alternate hosts to some organism. For example, ash trees and lilac bushes are subject to attack by the same boring caterpillar and are susceptible to the same scale. Lilacs also have, with rhododendrons, a common enemy in the destructive phytophthora blight and should therefore not be planted in close proximity. The fungus that causes red cedar rust spends part of its life cycle on the red cedar or juniper and part on trees of the apple family. Apples, hawthorn and shadbush, or serviceberry, act as alternate hosts for a group of elm leaf-rolling or curling aphids. Maple and alder have a somewhat similar aphid species alternating between them.

GALLOWAY CONTINUES ACTIVITY.

Dr. Beverly T. Galloway, retired recently from the United States Department of Agriculture under the age limit clause, is not planning to retire from active research. He, like several other scientists similarly retired, plans to continue research, especially the broader aspects in relation to new crops, their diseases and utilization under changing economic conditions. He will divide his time between headquarters in the bureau of plant industry in Washington and his winter home on a small tract in Florida where he will devote particular attention to new plants of value to Florida and the south.

Dr. Galloway was appointed to the department in 1887 and has served continuously—with the exception of two years—in research and administrative posts. He was largely responsible for the creation of the bureau of plant industry from several independent divisions engaged in plant research and was chief of the new bureau from 1901 to 1912. In 1913 and 1914 he was Assistant Secretary of Agriculture and was then dean of agriculture at Cornell University for two years, returning to the department in 1917.

RICHEY TO PLANT BUREAU.

The appointment of Frederick D. Richey, now in charge of corn investigations, bureau of plant industry, as associate chief of that bureau, effective January 1, was announced November 29 by Secretary of Agriculture Henry A. Wallace. Mr. Richey will aid the chief, Knowles A. Ryerson, whose appointment was recently announced, in

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the general administration of the department's largest scientific bureau and will give special attention to research activities.

Mr. Richey succeeds Dr. Karl F. Kellerman, who will become head of a new division of plant disease eradication and control in the bureau of entomology. This division will have transferred to it all activities directed toward the control and eradication of the phony peach disease, blister rust, barberry, citrus canker and Dutch elm disease.

Frederick D. Richey was born September 3, 1884, at St. Louis, Mo. He received the degree of Bachelor of Science in agriculture from the University of Missouri in 1909. He has been with the United States Department of Agriculture since 1911, engaged in corn investigations, and has been in charge of the department's research work in this field since 1922.

In his new position, Dr. Kellerman will be able to devote his full time to plant disease work, a field in which he has been an outstanding leader for twenty years. Among numerous other activities, he organized in 1915, and has since directed, the cooperative campaign of the gulf states and the bureau of plant industry to eradicate citrus canker.

Karl Frederick Kellerman was born of American parents in Göttingen, Germany, December 9, 1879. He received the degree of Bachelor of Science from Cornell University in 1900 and Doctor of Science from Kansas State College in 1923. He was an assistant professor in botany, Cornell University, 1900-1901; assistant physiologist, bureau of plant industry, United States Department of Agriculture, 1901-1904; physiologist in charge of laboratory plant physiology, 1905-1906; physiologist in charge of soil bacteriology and water purification investigations, 1906-1914; assistant chief of the bureau of plant industry, 1914-1917, and associate chief of the bureau since 1917. Dr. Kellerman organized the Journal of Agricultural Research in 1913 and was chairman of the editorial committee from 1913 to 1924. In 1917 he was designated by President Wilson as a member of the national research council, serving as secretary of the agricultural committee, and since 1918 he has been a member of the division of biology and agriculture and of the division of federal relations.

WITH a loss of \$2,000, the Wilmer Amey Nursery, on Bethlehem pike, near Quakertown, Pa., was attacked by fire November 22.

Cover Crops Aid Soil

Increase Productivity in the Nursery

Nurserymen, states L. C. Chadwick in his Nursery Notes, prepared for issuing by the department of horticulture of Ohio State University, Columbus, are coming to realize more and more that the best means of maintaining high productivity of their soil is through the use of cover crops. Soy beans have been used most for this work. Sweet clover, red clover and rye have been used to less extent. The last-named, however, is the most satisfactory cover crop to use over the winter.

The variety of soy bean used most extensively for green manure crops is Manchu. This variety, however, is not altogether satisfactory, since it matures rapidly. Seed of this variety should be sown between May 15 and June 1, but owing to spring conditions, many nurserymen are unable to get the seed in at this time. Sown in October, the crop will be ready to plow under by August 1.

Rye or Vetch Useful, Too.

For those who find it necessary to sow the seed in mid-June, better results will be had with the variety Wilson. This variety is a more rapid grower and matures later than Manchu. Indications in Lake county, Ohio, point to a more extensive use of this variety.

Rye or rye and vetch may be used as a cover crop to follow soy beans. While it is best to seed early in September, it is still possible to sow at this time. Use a mixture of eight quarts of rye and one quart of vetch and seed at the rate of five pecks per acre.

A cover crop sown in the fall is beneficial in a number of ways. It will absorb some of the fertilizer elements which might otherwise be lost by leaching, it prevents considerable washing of the soil during the winter and spring months and when plowed under in the spring, it will add considerable humus and nutrient materials to the soil.

Deep-rooters Useful.

Most nurserymen judge the cover crops by the part that is produced above the ground. This should not be the case. Figures show the following to be true: In red clover and alfalfa thirty-three and one-half per cent of the total plant is in the roots; in sweet clover, twenty-six and one-half per cent; in vetch, seventeen per cent; in soy beans, twelve per cent, and in rye, five per cent.

These figures show the importance of using legumes wherever possible. It has been shown, also, that with cereals approximately one-half of the total root growth is in the first ten inches of the soil, while with alfalfa, and probably other legumes, as much as forty per cent of the root system is below thirty inches.

This distribution of roots is important in the distribution of fertilizers. It has long been supposed that considerable quantities of phosphorus and potassium applied to the surface of the soil never reached the tree roots. Deep-rooting legumes may act in taking some of these elements from near the surface to the lower root zones.

COVER CROPS AID ORCHARDS.

The judicious use of cover crops in the orchard will have much the same effect in maintaining soil fertility as does the practice of crop rotation in general farming, declare soil specialists at the New York state experiment station, at Geneva. The loss of organic matter, and not depletion of the mineral components of the soil, accounts for the declining fertility of many orchards where clean cultivation is practiced without attention to the organic matter supply.

The common practice of cultivating orchards year after year without giving sufficient attention to the maintenance of a good supply of organic matter will eventually result in lowered yields of fruit. It is necessary, therefore, for the grower to provide a liberal supply of organic matter to the soil by some means. This is best accomplished by growing some form of cover crop. These can be grown annually or they may be grown at intervals of two or three years. If followed consistently, this will result in improved soil conditions and more productive orchards.

DEMONSTRATION PLANTINGS.

Fourteen coöperative demonstration farm forest plantings were conducted by the Idaho agricultural extension service this year, according to S. C.

Clarke, extension forester. These plantings were arranged so that they might demonstrate the adaptability of certain tree species for farm use in Idaho.

The species planted were seedlings of Siberian elm, white ash, Russian olive, Siberian pea tree, black locust and Norway spruce. Where the black locust is restricted in growth by climatic conditions, substitution was made with the other species enumerated. The Siberian pea tree and the Russian olive were planted in the windward rows to assist in diverting the wind movement upward, rather than allowing the wind to pass through the lower part of the windbreaks.

Besides the fourteen demonstration plantings, there were approximately 200 strictly coöperative plantings made by purchasers of Clarke-McNary tree seedlings from the state nursery. The total number of seedlings and transplants distributed was approximately 80,000. Of this number over 56,000 were black locust, approximately 9,000 Siberian elm, over 4,000 white ash, 2,000 Norway spruce and 1,600 Scotch pine.

EROSION CONTROL NEEDS TREES.

Tree planting will be necessary to complete thousands of erosion-control jobs undertaken by the federal government as part of the emergency conservation work program, according to the United States forest service. To insure the premanence of gully-stopping dams built by the 103 erosion-control camps of the C. C. C. this year, trees and grass must be planted. Most of the planting will be done by the C. C. C., but many farmers will plant

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their own lands, states a dispatch from the forest service, which adds:

"Emergency demand for tree stock for planting may be too great for the nurseries, and conservation workers and farmers may have to transplant seedlings from woodlands and stream beds. In addition to the black locust, pine, cottonwood and willow plantings this fall and next spring, many trees native to the various localities should be planted in mixed stands which usually grow better than pure stands and are less likely to suffer destructive attacks of borers or other insects.

"Cottonwoods, willows, silver maples and sycamores are especially recommended for moist bottom lands; elms, pines and red cedars for the hills and upper slopes of gullies; oaks and other species for the heads of gullies."

AIRPLANES APPLY OIL SPRAYS.

Airplanes, hitherto used for seeding rice, sowing fertilizer and dusting with sulphurs, etc., now are employed to apply oil sprays. This was first tried about two years ago, but has now been used on several thousand acres with marked success.

These oils are made miscible with water so that they will not be repelled by moisture which may be on the trees or plants at the time of spraying, this being done in the morning or toward evening, when there is little air movement.

These concentrate sprays are not diluted with water, but air is used as the carrier instead. The spray is broken into a fog as it leaves the plane by the use of revolving brushes or propellers. This fog settles onto all parts of the plant or tree, giving a coverage on the lower surface as well as the upper. Six to ten gallons cover an acre.

The planes usually fly over every other row of trees or, in the case of truck crops, a strip thirty to forty feet wide, and generally two or three feet above them. In this manner individual acres have been treated in seven seconds. Considering loading and turning, the planes usually cover thirty to fifty acres per hour.

The miscible oils are used for the control of scale insects, or pyrethrum or nicotine may be added to the oil for the control of aphids, thrips, leaf hoppers, etc.; lead arsenate may be added for the control of worms; copper compounds may be added for fungus control.

TESTS FAVOR GRAFTED GRAPES.

Grafted vines of such common varieties of grapes as Catawba, Campbell, Concord, Delaware, Iona, Niagara and Worden, after seventeen years in the vineyards of the New York state experiment station, continue to give marked increases in yield and greatly improved quality of fruit over own-rooted vines of the same varieties growing alongside, declares Prof. F. E. Gladwin, grape specialist at the station's vineyard laboratory at Fredonia, N. Y. The cost of grafted vines is still high, and the profitable use of grafted stock by the commercial grape grower depends on several factors.

"In grafting the grape there is a time and a way, not so particular as many believe, but rather more particular than in grafting most other fruits,"

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says Professor Gladwin in an introduction to a brief circular entitled "Grafting Grapes," in which he describes the important details to be considered in the operation. Also, in a recent bulletin, Professor Gladwin reports on the behavior of the grafted vines in his tests which were begun in 1915. "Grafting American Grapes on Vigorous Stocks" is the title of this bulletin, a copy of which may be had free of charge, together with the circular on grafting, upon request to the experiment station at Geneva, N. Y.

TINSLEY DAVIS, Lenexa, Kan., employed by the Webb S. Ellifrit Nursery Co., Kansas City, Mo., for two years, has become proprietor of the enterprise. Mr. Ellifrit died recently. Mr. and Mrs. Davis have moved to Kansas City, Mo.

TONY PODESTA, nurseryman of Norwalk, Cal., was severely injured when his automobile was struck by another near Winterburg, Cal., November 9. Mr. Podesta was taken to St. Joseph's hospital, Orange, Cal., but after a few days his condition was so improved that he was taken to his home at Norwalk.

Recent Publications

Books and Bulletins of Trade Interest

PESTS OF STONE FRUITS.

Special bulletin 244 on "Insect Pests of Stone Fruits in Michigan," by Ray Hutson, has been issued by the agricultural experiment station at Michigan State College, East Lansing. It treats first of insects chiefly injurious to foliage, discussing each pest separately and describing life history, habits, appearance, injury and control. Another section treats of insects injurious to the fruit, and a third treats of insects attacking trunks, limbs, roots and bark. The insects discussed number about a score in this 40-page pamphlet.

WOODY PLANTS FOR SHADE.

Cornell extension bulletin 268, on "Woody Plants That Tolerate Shade," by R. W. Curtis and Donald Wyman, is published by the New York State College of Agriculture at Cornell University, Ithaca. After a general discussion of the problems that attend the growth of plants in shade, and methods of their treatment for success, this 32-page bulletin gives concise information regarding plants according to various groups. They are woody plants that tolerate shade and, first, prefer acid soil condition; second, dry soil condition; third, wet soil condition, and fourth, normal soil condition. The conditions suitable for each type of plants are discussed, and in each group is a list of the plants and their landscape value, with botanical and common names, height of plant, color of flower and time of bloom, with other notes of special interest.

FLOWERING CRAB APPLES.

Technical bulletin 214, issued by the New York state agricultural experiment station, at Geneva, is the second bulletin on "Notes on the Species of Apples," and bears the subheading, "The Japanese Flowering Crab Apples of the Sieboldii Group and Their Hybrids." It is by G. P. Van Eseltine. This bulletin continues the treatment of apple species begun in technical bulletin 208. A review of the species and hybrids of *malus*, section *Sorbomalus*, subsection *Sieboldiana*, is given together with drawings of dissected flowers. In view of the success attained with native stocks for American crab apples, it is suggested that seedlings of Asiatic crabs be tried for stocks in this group. The botanical descriptions are quite complete and are illustrated, while comments indicate the parentage and the uses of these species.

PROPAGATION OF HOLLY.

"Selection, Propagation and Growth of Holly," by P. W. Zimmerman and A. E. Hitchcock, of the Boyce Thompson Institute for Plant Research, Yonkers, N. Y. A short summary of the institute's earlier work, "Vegetative Propagation of Holly" in 1929, together with the results of more recent experiments and observations. Concerns native holly, *Ilex opaca*; English holly, *I. aquifolium*, and Chinese holly, *I. cornuta*. Professional paper No. 27.

BOOK ON THE ROCK GARDEN.

Rock garden enthusiasts will revel in Louise Beebe Wilder's latest contribution to gardening lore, a popular-priced book called "The Rock Garden." This is not just another book on this phase of gardening, but a charming comprehensive treatment of the subject based upon the author's experiences. Furthermore, she has the courage to avoid subjects that she is not familiar with. For example, under meconopsis, she merely states, "Can say nought of this great race as yet." However, she has handled such a tremendous variety of plants that such omissions are rare.

The first half of the book covers the subject in a general way and includes the following chapters: "Creating the Landscape," "The Soil," "The Plants and Their Necessities," "A Lay of Little Bulbs," "Collecting Crane's-bills," "Poppy Magic," "Shrubs for the Rock Garden" and "Annuals for the Rock Garden."

The latter half of the volume, entitled "Notes on Growing Rock Plants," treats in alphabetical order a vast number of plants, so vast in fact that it will take considerable searching to find sources of all of them. The descriptive

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and cultural bits recorded are terse, vivid and informative, which makes this part of the book excellent for reference work. Because of its price, \$1.65, postpaid, and its completeness, this book will doubtless become one of the leaders in its field. Doubleday, Doran & Co. are the publishers. The volume is available from The American Nurseryman at the publishers' price.

"GARDEN FLOWERS IN COLOR."

Judging from the inquiries received at publishers' offices from time to time, there has been a definite need among horticulturists for a book such as G. A. Steven's "Garden Flowers in Color," and the book will undoubtedly be greatly used by nurserymen, landscape gardeners, florists and amateurs. It rightfully carries the subtitle, "A Picture Cyclopaedia of Flowers," for it contains 400 illustrations of annuals, biennials and herbaceous and shrubby perennials in full color.

Every flower illustrated is accompanied with brief descriptive and cultural information, and usually the best method of propagation is mentioned,

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also the plant's hardness. A detailed index is made up of both botanical and vernacular, or common names, permitting quick access to a desired plant. The items treated are arranged alphabetically throughout the volume, usually according to the generic name, exceptions being taken where the plant is better known by its common name. For example, *Polianthes tuberosa* is presented with the *t's* under the common name, *tuberosa*.

The volume measures $6\frac{1}{4} \times 9\frac{1}{4}$ inches high, is bound in red cloth and contains 320 pages. Due acknowledgment to a large number of firms in the trade is made for the use of illustrations from their publications. The book, a product of the Mount Pleasant Press, of the J. Horace McFarland Co., is published by the Macmillan Co., but is available through The American Nurseryman at the publisher's price, \$3.75.

FOR THE ROSE.

A good many nurserymen are already members of the American Rose Society and give it loyal support. Still more will be members if success attends the vigorous efforts of J. Horace McFarland and G. A. Stevens, editors of its publications. The November-December issue of the American Rose Magazine, an interesting little periodical, carries a "Help! Help!" appeal for dues and new members on the front cover and a couple of other messages to the same end. In view of the estimate of 18,000,000 outdoor-grown rose plants produced and sold each year in the United States, made by Mr. McFarland, it seems as though nurserymen have a

stake in rose interest in America which is worth the investment of \$3.50 for a year's membership in the organization. Members get their money back promptly in the annual volume, which is a real book, and in the periodical publications of the society. A special membership rate of \$5 is available, which gives new members two copies of the American Rose Annual of years previous to 1933, in addition to the current one, and renewal members who pay \$5 can obtain a copy of the new book, "Climbing Roses," thus saving 50 cents. Inquiries or remittances may be sent to the secretary of the American Rose Society, Harrisburg, Pa.

BOOK OF CHEMICAL FORMULÆ.

"The Chemical Formulary" is the title of a handy reference book, just issued, presenting the latest methods and formulæ for the manufacture of hundreds of products used in modern industry. Most of the information requires no technical knowledge and can be readily grasped by laymen.

To obtain these formulæ the editor of this interesting project has succeeded in obtaining the cooperation of a long list of experts in the various fields covered. A perusal of the book indicates that the formulæ submitted are not ancient recipes, but are the latest developments used in their daily work. This book of 550 pages will be of inestimable value when a new problem arises, by enabling one to obtain information quickly.

In this brief space it is impossible to cover the thousands of formulæ given. Just a few of the subjects covered are adhesives, alloys, antiseptics,

bleaches, boiler compounds, carbon paper, castings, cleaners, colors, cosmetics, disinfectants, dyes, emulsions, etching, fireproofing, fuels, glazes, insecticides, inks, lacquers, latex, leather, liquors, lubricants, paint, paper, plastics, plating, polishes, preservatives, printing, rubber, sizings, soaps, softeners, solders, solvents, stains, synthetic resins, varnish, viscose, vulcanization, waterproofing, welding, weed killers, etc.

"The Chemical Formulary" is excellently indexed and will furnish a valuable tool to the technical workers of the industry. For the executive and nontechnical worker, in many cases, it lights the way to a better understanding of the many compounds and treatments with which they are in constant contact.

Bookworms will not like "The Chemical Formulary," as its cover has been treated with pyroxylin to render it washable and vermin-proof.

Copies are obtainable through the office of The American Nurseryman at the publisher's price of \$6.

LEAVES HELENA FIRM.

After thirty-three years with the State Nursery & Seed Co., Helena, Mont., Walter Card, who was secretary-treasurer, has retired from the business. He retains his directorship in the company. Mr. Card is being succeeded by J. Lucien Poitras, who was with the company from 1913 to 1918, when he went to the Charles H. Lilly Co., Seattle, Wash., with which company he lately severed connections, to take up the work at Helena. Thomas Mills is president of the State Nursery & Seed Co.

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Herbaceous Perennials

Comments on Less Common Varieties

SILENE PUMILIO.

The genus *silene* is a vast assemblage of plants, numbering 400 species, as usually defined by botanists. In such a large number of plants it is no more than natural that we find a few good garden ornaments as well as some weeds. Arrayed among the former is the subject of this paragraph—*Silene pumilio*.

The plant is not over two or three inches high when in flower and seldom becomes more than that in diameter, forming a dense cushion of narrow linear leaves, glossy green and hairy at the margins. In June this cushion is studied all over with bright rose-pink flowers about one and one-half inches across, the large size of the flowers being emphasized by the much enlarged calyx. The only really poor quality I have noted in this catchfly is its dead look during the resting period, when the plant looks as if it had wearied of life and had gone to plant heaven. This is all quickly changed, though, when the breath of spring stirs sleeping nature and *S. pumilio* puts forth its pleasing foliage.

S. pumilio seems not too difficult in our climate, asking for no more than a light gritty soil, containing some leaf mold, and is particularly good in the scree. Incidentally, a well made scree will make a lot of alpine plants which otherwise need the comfort of a moraine feel at home in our lowland gardens. Like most *silenes*, this one is easily grown from seeds; likewise, similar to others of the clan, it is not easily handled after it has attained maturity. In this particular case, the woody roots are easily broken. The best results come from handling small plants or by growing and shipping them in pots.

SEDUM ACRE AND ITS KIN.

I suppose that the type *Sedum acre* has earned its unpopularity with gardeners. Anything, plant or animal (humans included), which tries to possess everything in sight deserves curbing. However, we need not let our animosity against the parent cover all of its progeny. If we do, we are going to miss two or three of the best *sedums* in American plant lists.

S. a. minus is one of the plants that suffer because the better known parent has made a nuisance of itself. Few plants make a lovelier ground cover for sunny situations than this abbreviated form of *acre*. And it has little of the greediness of the type. A lean soil is what it needs, and then it remains small in all its parts, a lovely thing in the dark green dress of its foliage. It is also a good plant for the vertical wall.

The true variety major (*majus* of botanists and variety *Maiveana* of European garden literature) is a distinct plant not easily recognizable by nonstudents of the genus as an *acre*. This plant has two obstacles to overcome: First, its connection with the *acre* group and, second, the substitution of a particularly vigorous form of *acre* for the true thing. There is no

mistaking the true plant once one has seen it, although it is difficult to point out on the printed page just where the differences are to be found. Large (compared with the type) pale green (approaching yellowish green at some seasons) leaves in seven closely crowded rows are its most prominent distinguishing marks. Praeger, who has written the latest and best monograph of the genus, remarks, in his comments on this variety, that "compared with the type, a large and solid plant, which might well pass for a different species until it blossoms."

While speaking of the *acre* group of *sedum*, it may be well to attempt to unsnarl a tangle which has lately appeared in American trade lists. There is a form of *acre* with yellow tips going the rounds under label of *S. a. elegans* which is most assuredly misnamed. *S. a. elegans* is a weak thing (not too hardy, either) with silver tips. And so far as I know, it is not in American commerce. I have had lately at least a dozen plants labeled *S. a. elegans* and every one of them has turned out to be what I understand as *S. a. aureum*. The latter is a typical *acre*, although not so strong-growing as the type, with shoots tipped yellow, this color being most prominent in spring, but remaining more or less throughout the year in this climate.

ALYSSUM CONDENSATUM.

I have often wondered why the crucifer, *Alyssum condensatum*, was not more popular with gardeners and during the past year have made it a point to ask everyone that came my way. From these inquiries, I find that the only fault to be found with the plant is that it becomes unsightly after flowering. It is a fact that the plant, as usually handled, is a mess at this time. I should like to offer a suggestion, though, in this connection which may render it one of the most desirable of *alyssums*. Everyone acquainted with the plant will have to concede that it is one of the loveliest of the race so far as foliage is concerned during its first year, or before it blooms. A few years ago, in a mood of desperation with the plant's behavior under usual *alyssum* treatment, I put one in a northeast wall where it gets full sun during the morning, diluted sunshine until mid-afternoon and from then on none. This plant has remained a picture over a period of years, as long as or longer than any of the shrubby *alyssums*. And the experiment has been repeated a number of times with the same result. The experience is set down here, with the hope that it may help others to enjoy the beauty of this *alyssum*.

The plant makes a prostrate shrubby growth and is an ideal thing for the wall or steep rocky slope, where it will hug the surface, displaying its beautiful silvered leaves to the best advantage. Its light yellow flowers in June are typically *alyssum*. Propagation is from seeds or cuttings. For the benefit of beginners in the art of propaga-

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tion, a few words on growing shrubby *alyssums* may not be out of place. There are a number of plans which may be used, but the following is both easy and sure: As soon as the plant is through blooming, cut it back severely, to induce an abundance of new growths. These, taken with a heel and inserted in a close shaded frame, should root readily. The cuttings should be syringed four or five times a day until danger of flagging has passed and must not suffer for moisture at any time. The question of moisture is a delicate one, as too much will cause rotting and too little will cause desiccation. Observation and common sense will soon show the happy medium. Cuttings with a sufficient root system may go to the field when the first fall rains come, but others should remain in protected frames over winter.

✓ VIOLA, PEACH PATENTED.

According to Rummler, Rummler & Woodworth, Chicago patent lawyers, a patent for a *viola* and one for a *peach* were granted November 28, as follows:

83. *Viola*. Stuart R. Weston, Marcy, N. Y. One claim. This variety of *viola* is characterized particularly by its small and compact foliage, by its large flowers borne on stout long stems and by having distinctive violet to mauve-colored petals with lemon chrome eye and dark purple lines radiating therefrom, also by having intensely fragrant odor, the plant being further characterized by its long flowering season and by its resistance to cold weather.

84. *Peach*. William F. Yerkes, near Rio Oso, Cal. One claim. This *peach* tree is characterized by the ripening period of its fruit relative to the period of ripening of similar varieties, by the heavy set of the fruit on the tree and by the globular, slightly elongated shape of said fruit with a moderate ridge along the line of suture.

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Myrica Cerifera2 yr. Sdgs.
Rosa Multiflora Japonica1 yr. Sdgs.
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Evonymus KewensisR. C. & 3 yr. Trans.
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Juniper Horizontalis2 yr. Trans.
Juniper, Irish2 in. Pots
Juniper PfitzerianaR. C. & 2 1/2 in. Pots
Juniper Stricta2 1/2 in. Pots
Picea America3 yr. Sdgs.
Pinus Mughus3 yr. Sdgs. & 4 yr. Trans.
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Taxus Cupidata2 yr. Trans.
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C. E. Wilson & Company, Inc., Manchester, Conn.

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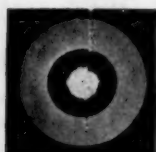
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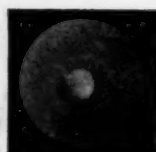
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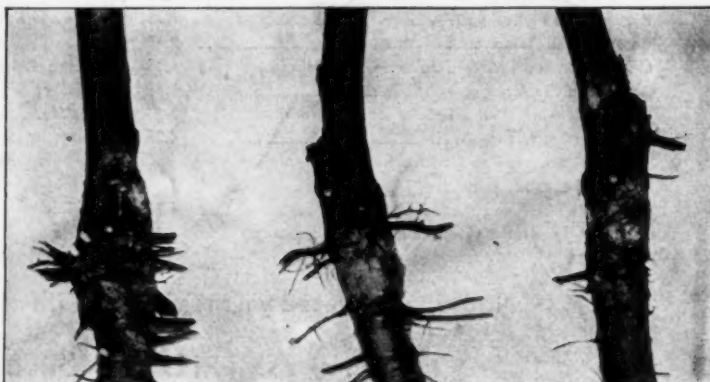
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